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STYLES, QUALITIES, AND SEXUAL BEHAVIOR
IN YOUNG PEOPLE'S ROMANTIC RELATIONSHIPS:
A LONGITUDINAL EXAMINATION OF WITHIN-PERSON
AND BETWEEN-PERSON EFFECTS

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Presented to
the Faculty of Social Sciences
University of Denver

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
Meredith C. Joppa

August 2012

Advisor: Wyndol Furman, Ph.D.

Author: Meredith C. Joppa

Title: STYLES, QUALITIES, AND SEXUAL BEHAVIOR IN YOUNG PEOPLE'S ROMANTIC RELATIONSHIPS: A LONGITUDINAL EXAMINATION OF WITHIN-PERSON AND BETWEEN-PERSON EFFECTS

Advisor: Wyndol Furman, Ph.D.

Degree Date: August 2012

Abstract

The prevalence of early sexual behavior places many youth at risk for unintended pregnancy, sexually transmitted infections (STIs) and HIV. The purpose of this study is to examine the interplay among romantic styles, relationship qualities, and sexual behavior at both the within-person and between-person levels. Frequencies of light nongenital, heavy nongenital, and genital sexual behavior were examined as well as risky sexual behavior. 200 young people from a community sample were assessed at six time points from ages 15 through 21. Avoidant styles were associated with less frequent sexual behavior at both within- and between-person levels, and with more risky sexual behavior at the between-person level. Support and more frequent sexual behavior were significantly associated at the within-person level, and gender moderated associations between support and sexual behavior at the between-person level. Participants who reported more negative interactions in comparison with their peers reported more frequent and more risky sexual behavior. Only avoidant styles exhibited a similar pattern of between-person and within-person associations with sexual behavior, suggesting that styles and qualities may operate at either or both levels depending on the construct in question. Associations among styles, qualities and sexual behavior may also depend on how sexual behavior is measured.

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Introduction

The prevalence of early sexual behavior places many youth at risk for unintended pregnancy, sexually transmitted infections (STIs) and contracting human immunodeficiency virus (HIV). Understanding the development of normative sexual behavior is critical to understanding risk and protective factors for sexual risk behavior. On average, young people in America become sexually active around age 17 (Alan Guttmacher Institute, 2002), and nearly all (90%) have had sexual intercourse by the age of 27 (Halpern, Waller, Spriggs, & Hallfors, 2006). Young people's sexual behavior occurs most frequently within the context of romantic relationships (e.g., Elo, King, & Furstenberg, 1999; Manning, Longmore, & Giordano, 2000). Approximately 25% of 12-year-olds, 50% of 15-year-olds and 69% of 18-year-olds of American youth report being in a "special" romantic relationship in the past 18 months (Carver, Joyner & Udry, 2003). Young people who have romantic partners have more opportunity to be sexually active (see Zimmer-Gembeck & Helfand, 2008), and the majority of older adolescent women describe their sexual partners as someone with whom they have an ongoing relationship, like a friend, boyfriend, or fiancé (Graber, Britto, & Brooks-Gunn, 1999). Adolescence and the transition to emerging adulthood are therefore key time points for investigating the development of sexual behavior within the context of romantic relationships.

From a social-personal perspective on sexual development, both personal and relational factors are important correlates of the frequency and risk level of young people's sexual behaviors (Donenberg & Pao, 2003). For example, representations of romantic partners (a personal factor) may influence young people's sexual behavior with significant others, as prior work has shown (e.g., Jones & Furman, 2011; Tracy, Shaver, Albino, & Cooper, 2003). Qualities of relationships with romantic partners (a relational factor), both positive and negative, may also affect how often sexual behavior occurs (Fortenberry et al., 2005) and how risky it is (Fortenberry, Tu, Harezlak, Katz, & Orr, 2002).

Both romantic representations and romantic relationship qualities change over time within individuals and between individuals. Thus, work is needed to examine longitudinal links. Previous studies have examined sexual behavior in association with representations and with qualities, but rarely both. The purpose of this paper is to employ multilevel modeling procedures to examine the interplay among romantic styles, relationship qualities, and sexual behavior in an ongoing longitudinal project on adolescent and emerging adult close relationships, psychosocial adjustment and health. These associations were examined at both the within-person and between-person levels, and multiple levels and dimensions of sexual behavior were included.

Romantic Relational Styles

Bowlby (1969) hypothesized that individuals develop mental representations of their relationships with others, and that these representations guide their behavior within close relationships and help individuals predict and interpret others' behavior. These

representations are closely linked to the attachment, affiliative, caregiving, and sexual/reproductive behavioral systems that operate when an individual is in a romantic relationship (Furman & Wehner, 1994). Romantic relational styles are one type of romantic representation. Romantic relational styles are orientations to romantic relationships based on experiences in childhood and later close relationships with attachment figures, including romantic partners (Hazan & Shaver, 1987). As in attachment theorists' conceptualization of attachment-related mental representations (see Mikulincer & Shaver, 2007), romantic styles can be defined in terms of two dimensions: avoidance and anxiety. Those with more avoidant styles aim to create distance and maintain control in relationships, because they do not expect to receive support (Main, 1991). Thus, they are less likely to turn to their partners or respond to partners seeking support, are not very invested in a relationship, and see sexuality as an opportunity for self-gratification. More anxious individuals claim to value intimacy and really want romantic relationships, but greatly fear being unwanted or abandoned by their partners, worry excessively about their partners' fidelity and satisfaction, and depend too much on their partners for support and their own self-worth.

Attachment researchers have shown that romantic representations are related to sexual behavior in adulthood. Adults with secure (neither anxious nor avoidant) representations report fewer casual sexual partners (Brennan & Shaver, 1995). Attachment avoidance is associated with aversive sexual feelings and cognitions and few physically intimate behaviors (Birnbaum, Mikulincer, Orpaz, Reis, & Gillath, 2006; Fraley, Davis, & Shaver, 1998). Avoidant young adults also report less frequent sexual

intercourse (Bogaert & Sadava, 2002; Gentzler & Kerns, 2004). As for risky sexual behavior, adults with avoidant attachment representations also hold more accepting attitudes toward casual sex (Feeney, Noller, & Patty, 1993), are more likely to have “hook-ups,” or brief sexual encounters with strangers or brief acquaintances (Paul, McManus, & Hayes 2000) and have more casual sexual partners (Simpson & Gangestad, 1991). Avoidance is also associated with unrestricted sociosexuality, which refers to feeling comfortable having sex without closeness or commitment (Simpson & Gangestad, 1991). Thus, avoidance may be expressed by either engaging in little sexual behavior or engaging in it in nonintimate contexts.

According to both behavioral systems theory and attachment theory, romantically anxious individuals may see sexual behavior as a means of obtaining love, but may also be concerned about being unwanted and being abandoned (Furman & Wehner, 1994; Mikulincer & Shaver, 2007). Consequently, they may be more likely to defer to partners’ wishes regarding sexual behavior. Consistent with this idea, anxious representations are linked to increased risky sexual behavior and more lifetime partners (Bogaert & Sadava, 2002; Feeney, Peterson, Gallois, & Terry, 2000). Anxious women typically engage in sexual intercourse at an earlier age, perhaps complying with the traditional stereotype of a male partner's wishes (Bogaert & Sadava, 2002)

Despite the significance of adolescent sexual behavior, less is known about how romantic representations are related to adolescents’ sexual behavior. One of the few studies to examine such connections was conducted by Cooper, Shaver, and Collins (1998) and further described in a paper by Tracy and colleagues (2003). In a community

sample of 13- to 19-year-olds, they found that avoidant adolescents had the least romantic relationship experience and were least likely to have had sexual intercourse or to have engaged in other sexual behaviors. Secure and anxious adolescents reported the most frequent intercourse. Avoidant and anxious adolescents were more likely than secure adolescents to have had sex with a stranger, but no differences were found in the total number of partners or the likelihood of having an STD. Previous cross-sectional research with the present sample revealed that romantic representations were related to sexual behavior in adolescence (Jones & Furman, 2011). Avoidant representations were related to later onset of genital sexual behavior and less frequent sexual behavior, particularly light and heavy nongenital behaviors. Anxious representations were related to more frequent sexual behavior and more risky behavior. Romantic experience partially mediated the associations between avoidant views and sexual behavior (Jones & Furman, 2011). Young people with more avoidant romantic representations may be less likely to have romantic relationships, which in turn may make it less likely for them to engage in light nongenital or heavy nongenital sexual behavior.

In sum, young people with more avoidant styles may report less frequent sexual activity, perhaps due to their aversion towards emotional intimacy and closeness with partners. However, their tendency to focus on pleasure and experimentation in sexual activity may lead to higher rates of risky sexual behavior. For young people with more anxious styles, a desire for intimacy and keeping partners close may lead to more frequent sexual behavior. Additionally, more anxious adolescents' fear of being abandoned or rejected by partners may result in more risky sexual behavior.

Romantic Relationship Qualities

Romantic relationship qualities are interaction patterns or characteristics that young people experience in their relationships with partners. Prior research suggests that support and conflict are important relationship qualities for late adolescents (Galliher et al., 2004). The present study included measures of perceived support and negative interactions as indicators of romantic relationship qualities. Support and negative interactions are only modestly related to one another (see Furman & Buhrmester, 2009; Ibarra-Rovillard & Kuiper, 2011). Thus, it is important to assess participants' perceptions of both support and negative interactions.

Previous research has shown that both support and negative interactions are associated with measures of sexual frequency and risk. Caring and emotional engagement with partners are related to greater odds of nongenital and genital sexual behavior in adolescence (Giordano, Manning, & Longmore, 2010). How likely an adolescent girl is to have intercourse on a given day is related both to higher partner support and greater conflict (Fortenberry et al., 2005). Similarly, support from romantic partners is related to more frequent sexual behavior among older adolescents, but so are higher levels of conflict (Rostosky, Galliher, Welsh & Kawaguchi, 2000). Manning, Flanigan, Giordano and Longmore (2009) found that more positive and less negative relationship qualities were associated with more consistent condom use. Finally, results from another study showed that more partner support was related to oral sex, but negative interactions with partners were not related to anal or oral sex (Hensel, Fortenberry & Orr,

2008). This suggests that associations between relationship qualities and sexual behavior may depend on the sexual behavior being measured.

The direction of effects could go either way, with sexual behavior affecting relationship qualities or relationship qualities affecting sexual behavior. Sexual intimacy may serve many different functions in romantic relationships, including strengthening the emotional bond between partners (Cooper, Shapiro, & Powers, 1998) and resolving conflict (Shulman, 2003). It is likely that associations between negative interactions and sexual behavior are bidirectional: conflict may lead to sexual problems such as decreased desire, arousal, and intimate behavior, and dissatisfaction with sexual activities may lead to increased conflict (Metz & Epstein, 2002).

In sum, more support in romantic relationships may be associated with more frequent and less risky sexual behavior. This idea runs counter to the conceptualization of sexual behavior as associated purely with negative outcomes for young people, and suggests that positive relationship qualities are also connected with sexual behavior. However, more frequent negative interactions are also associated with engaging in more frequent and more risky sexual behavior. These results are not consistent across studies and warrant further investigation.

Styles and Qualities: Independent Constructs?

Styles and qualities represent different, though overlapping, romantic relationship dimensions. Styles are personal and representational, whereas qualities are relational and experiential constructs. Romantic styles and qualities are theoretically closely linked (Fraley & Shaver, 2000), and empirical work supports these theoretical connections

between attachment representations and qualities. Adolescents (Furman, Stephenson, & Rhoades, under review) and adults (see Mikulincer & Shaver, 2007) with more secure representations report more supportive relationships.

Individuals with avoidant representations had fewer positive interactions with partners, perhaps because they value their independence and are uncomfortable with intimacy (Furman et al., under review). This is consistent with prior work (see Mikulincer & Shaver, 2007, for a review). In contrast, the literature is less clear regarding how support and anxious representations are related. Campbell, Simpson, Boldry and Kashy (2005) found that participants' anxious representations were not associated with their reports of daily support from partners. However, results from another study suggest that more anxious young people may not be happy with the perceived support they receive from partners (Rholes, Simpson, Campbell, & Grich, 2011). Anxious adults perceived ambiguous support as more hurtful in one study (Collins & Feeney, 2004), but perceived supportive events as more positive in another study (Simpson, Campbell, & Weisberg (2006).

Anxious representations may be associated with increased conflict because more anxious young people may react with hostility to perceived relationship threats (Simpson, Rholes, & Phillips, 1996). Anxious representations are associated with perceptions of daily conflict in romantic relationships (Campbell et al., 2005; Simpson et al., 2006). More anxious representations may lead to mistrusting and coercive behaviors which result in alienating romantic partners (for a review, see Simpson et al., 2006). Conversely, conflict and criticism from partners could exacerbate anxious representations.

With respect to avoidant styles, men's negative communication patterns are associated with increases in avoidance over time (Givertz & Safford, 2011). Men's avoidant representations are associated with recurring conflicts over issues of distance and closeness (Feeney, 1999). Conversely, more avoidant young people may report fewer negative interactions because they tend to avoid situations which may activate behavioral systems like attachment and caregiving. For example, more avoidant individuals are more likely to avoid discussing problems or trying to solve them (e.g., Black, Jaeger, McCarty, & Crittenden, 2000).

Taken together, previous work examining romantic qualities and representations suggests that they are related but distinct constructs that should be considered in tandem. In young people's daily lives, representations and qualities are two of the multifaceted factors affecting the sexual behavioral system. Because of the complex interplay among these variables, the present study includes both styles (anxious and avoidant representations) and qualities (support and negative interactions) in the same models of sexual behavior. It is important to include styles and qualities in the same models to assess each predictor's unique associations with sexual behavior while controlling for the other types of styles and qualities. For example, the effects of avoidant and anxious styles and support are held constant when the effect of negative interactions is computed. This makes it possible to obtain a more accurate picture of the true effect of each variable.

If styles are significant predictors of sexual behavior but qualities are not, we may infer that qualities are simply not significantly associated with young people's sexual

behavior. Alternatively, we may infer that the variance between styles and qualities is overlapping and therefore they are not truly independent constructs. For example, if styles significantly predict sexual behavior even when the effects of relationship qualities are taken into account, and the effects of qualities are nonsignificant in this same model, this may mean that young people's representations trump actual experiences in romantic relationships when it comes to sexual behavior. This may also be due to the fact that the variance explained by qualities can be fully explained by that variable's overlapping association with styles. Another possibility is that the effects of qualities on sexual behavior really are nonsignificant.

Within-person and Between-person Effects

In addition to the goal of teasing apart personal and relational factors that may be associated with sexual behavior, both within-person and between-person processes are of interest in examining young people's sexual behavior. Between-person effects address the changes that occur across a set of individuals (interindividual processes). Within-person effects assess what changes takes place within one person over multiple time points (intraindividual processes; Curran & Bauer, 2011). A classic example of the difference between these two types of effects is that people who exercise more are less likely to have heart attacks (a between-person association), but people are more likely to have heart attacks when they are exercising than when they are not (a within-person association). Between-person and within-person associations are not necessarily the same (see Curran & Bauer, 2011), and the predictors of within-person and between-person variability may or may not be different (Hoffman & Stawski, 2009). Between-

person associations are assessed by comparing data from multiple participants at one time point (interindividual differences). In contrast, within-person associations are measured by comparing data from one participant at multiple time points (intraindividual differences).

Most studies of young people's sexual behavior examine between-person differences. An important exception is a recent study by Lam and Lefkowitz (2012) whose multilevel models showed significant between-person and within-person effects of both personal and contextual factors on emerging adults' risky sexual behavior using multilevel modeling. Studies of between-person associations may be prone to spurious associations stemming from unmeasured third variables (Curran & Bauer, 2011). Longitudinal data are necessary to disentangle these effects (Curran & Bauer, 2011). To minimize spurious associations with potential third variables, longitudinal data allow each participant to serve as his or her own control, i.e., comparing his or her change over time to how he or she usually is on average (Lam & Lefkowitz, 2012).

Associations among styles, qualities and sexual behavior may be similar at the within- and between-person levels, or they may be different. Either way, they represent distinct mechanisms that are critical to understanding multiple levels of influence affecting the development of sexual behavior from adolescence into emerging adulthood (Hoffman & Stawski, 2009). At the between-person level, if an individual has more avoidant relational styles compared to other participants, he or she will report less frequent and more risky sexual behavior than an individual with less avoidant styles. At the within-person level, at times when an individual has more avoidant styles than usual,

he or she will report less frequent and more risky sexual behavior than usual. Teasing apart within-person and between-person effects means that results can be more specifically interpreted and targeted to potential intervention strategies for the population in question.

Romantic Relationship Status

Importantly, romantic relationship status changes markedly over the transition from adolescence into emerging adulthood. As young people grow older, they become more likely to be in a committed romantic relationship, live with a partner, and get married (Chen et al, 2006). Avoidant adults tend to date earlier and have more partners, whereas secure people have much longer relationships (Hazan & Shaver, 1987). Cooper et al. (1998) found that adolescents with more relationship experience were more likely to be anxious. In contrast to findings with adults, Cooper and colleagues (1998) also found that adolescents without relationship experience were more likely to be avoidant. Perceptions of relationship qualities may also be related to the seriousness and duration of a young person's relationships. For example, Giordano, Manning, and Longmore (2010) found that qualities and sexual intimacy were related when relationship duration was not included in the model, but most of these associations disappeared when relationship duration was included.

Romantic relationship status, or the level of seriousness or commitment in a relationship, is undoubtedly associated with sexual behavior. As sexual behavior occurs most often in the context of romantic relationships in adolescence (e.g., Elo, King, & Furstenberg, 1999; Manning, Longmore, & Giordano, 2000), those adolescents who have

more serious or committed romantic relationships are likely to have more opportunities to engage in more sexual activity (see Zimmer-Gembeck & Helfand, 2008). For example, adolescents in a study by Fortenberry and colleagues (2010) reported that oral, vaginal, and anal sex events occurred most frequently with a boyfriend or girlfriend. Relationship involvement (yes or no) is associated with condom use inconsistency and sex involving alcohol use for emerging adults (Lam & Lefkowitz, 2012).

Previous studies of sexual behavior in adolescence and emerging adulthood have often focused risky sexual behaviors, such as intercourse with casual partners (e.g., Paul et al., 2000). A growing body of literature is addressing adolescents' sexual involvement with nonromantic partners, including "friends with benefits", casual acquaintances and friends, with results indicating differences in sexual behaviors with different types of partners (Furman & Shaffer, 2011; Grello et al., 2006). However, it is important to consider both the type of relationship a young person has with sexual partners and the nature of the relationship, e.g., the level of commitment or seriousness of involvement. Specifically, the intensity and duration of a young person's romantic relationships is related to sexual behavior. Katz, Fortenberry, Tu, Harezlak, and Orr (2001) suggested that more enduring romantic relationships were associated with more frequent sexual intercourse among adolescent females. Finally, Jones and Furman (2011) found that adolescents' level of relationship experience partially mediated associations between romantic representations and sexual behavior.

Thus, it is important to take relationship status (level of seriousness/commitment) into account, particularly when examining qualities and sexual behavior with partners.

Not only do young people's sexual behaviors differ according to the type of relationship they have with their partner, but the level of commitment in the relationship. As the present study is longitudinal and assesses both between-person and within-person associations, the most relevant construct is current romantic relationship status. Whether a participant is not dating, casually dating, seriously dating, engaged or married at each wave is likely associated not only with age and sexual behavior but also with relational styles and romantic qualities. It is therefore important to include relationship status as a control variable in the present models in order to more accurately test the relations among the primary variables of interest.

Measuring Sexual Activity: Casting a Wider Net

Researchers are beginning to expand their investigation of adolescent sexual activity to include a broader spectrum of sexual behaviors beyond vaginal intercourse (e.g., Hensel, Fortenberry, & Orr, 2010; Welsh, Haugen, Widman, Darling, & Grello, 2005). Young people may engage in non-coital sexual behaviors like oral and anal sex because they do not consider them to be "sex" (Sanders & Reinisch, 1999) or perceive them as safer than vaginal intercourse. In 2002, one national study found that 11% of participants aged 15-19 had engaged in anal sex, and 55% of boys and 54% of girls in this age group had engaged in oral sex (Mosher, Chandra, & Jones, 2005).

It is also important to assess multiple levels of sexual behavior frequency, as different sexual behaviors may be related differently to styles. Light nongenital or affectionate behaviors like cuddling and kissing typically reflect intimacy and closeness as well as sexual attraction (Welsh et al., 2005). In fact, adolescents who have less

avoidant styles report more frequent nongenital and genital sexual behavior, and light nongenital behaviors like kissing and “making out” are more strongly associated with relational styles than are genital sexual behaviors (Jones & Furman, 2011).

Distinguishing among multiple levels of nongenital and genital sexual behavior also opens up possible connections with relationship qualities. Kissing is associated with relationship satisfaction and commitment across the span of adolescence, and more genital sexual activity is related to lower relationship satisfaction in early adolescence (Welsh et al., 2005). Risky sexual behavior, such as not using condoms or using substances in conjunction with sexual activity, may also evidence different associations with styles and qualities. Young people must not only choose how often they engage in different sexual behaviors, but also how much risk for unintended pregnancy and sexually transmitted diseases they assume through their activities. Frequency and riskiness of sexual behavior may reflect similar underlying processes, or they may not. Thus, a central goal of this study is to examine the frequency of sexual activity - from cuddling and kissing to oral, vaginal and anal sex – as well as risky sexual behavior, to obtain more detailed information about the sexual lives of all young people, not just those who choose to have intercourse.

The Present Study

The present study employed a behavioral systems theoretical (Furman & Wehner, 1994) framework in an effort to extend the literature on adolescent and emerging adult sexual behavior, romantic relationship qualities and romantic relational styles. This study is also informed by a social-personal framework (Donenberg & Pao, 2003), addressing

personal and relational factors that may contribute to young people's sexual behavior.

The aim of this study was to examine both the within-person and between-person effects of styles and qualities on sexual behavior over time in a longitudinal community sample that includes 200 participants over the transition from adolescence into emerging adulthood.

Prior research has shown that sexual behavior varies as a function of gender (Giordano et al., 2006), ethnicity (Smith & Udry, 1985), and romantic relationship status (Jones & Furman, 2011), so the present analyses were conducted controlling for gender, ethnicity, and current romantic relationship status. Little is known about how within-person differences in romantic relationship qualities or relational styles over time are associated with differences in sexual behavior frequencies. Therefore, predictions in the present study are based primarily on between-person findings in the literature. Four multilevel models were constructed, one for each of the sexual behavior outcomes: light nongenital frequency, heavy nongenital frequency, genital frequency, and risky sexual behavior. Gender was assessed as a potential moderator at both the within- and between-person levels. Specifically, this study tested the following hypotheses.

Hypotheses

H1: Styles. Associations between romantic relational styles and sexual behavior were expected at both the between-person and within-person levels.

1a. More avoidant styles will be associated with less frequent light nongenital, heavy nongenital, and genital sexual behavior.

1b. More avoidant styles will be associated with more risky sexual behavior.

1c. More anxious styles will be associated with more frequent light nongenital, heavy nongenital and genital sexual behavior.

1d. More anxious styles will be associated with more risky sexual behavior.

H2: Qualities. Associations between romantic relationship qualities and sexual behavior were expected at both the between-person and within-person levels.

2a. More support will be associated with more frequent light nongenital, heavy nongenital, and genital sexual behavior.

2b. More support will be associated with less risky sexual behavior.

2c. More negative interactions will be associated with more frequent light nongenital, heavy nongenital, and genital sexual behavior.

2d. More negative interactions will be associated with more risky sexual behavior.

Method

Participants

The participants were part of a longitudinal study investigating the role of relationships with parents, peers, and romantic partners on psychosocial adjustment in adolescence and young adulthood. Two hundred 10th grade high school students (100 boys and 100 girls; mean age=15.88 years; range=14.55 to 16.96 years old) were originally recruited from a diverse range of neighborhoods and schools in a large, Western, metropolitan area by distributing brochures and sending letters to families residing in various zip codes and to students enrolled in various schools in ethnically diverse neighborhoods. Designed to be relatively representative of the ethnicity of the United States, the sample was 11.5% African American, 12.5% Hispanic, 1.5% Native American, 1% Asian American, 4% biracial, and 69.5% White (non– Hispanic). The sample was of average intelligence and did not differ from national norms on 11 of 12 measures of adjustment (see Furman, Low, & Ho, 2009). With regard to sexual orientation, 88.5% said they were heterosexual (straight) at Wave 6, whereas the remaining participants said they were bisexual, gay, lesbian, or questioning. We chose to retain the sexual minorities in the sample to be inclusive.

Procedure

Data for each consecutive wave were collected at 12-month intervals from Wave 1 through Wave 4. Data for Wave 5 were collected 18 months after Wave 4, and data for Wave 6 were collected 18 months after Wave 5. During each visit, participants filled out questionnaires on paper and on the computer, including those on demographic information, romantic styles and romantic experiences. Participant retention was excellent: at Wave 1 and Wave 2, N = 200; Wave 3, N = 199; Wave 4, N = 196; Wave 5, N = 190; Wave 6, N = 186. Participants were financially compensated for completing the questionnaires. The confidentiality of the participants' data was protected by a Certificate of Confidentiality issued by the U. S. Department of Health and Human Services.

Measures

Behavioral Systems Questionnaire.

Participants completed the Behavioral Systems Questionnaire for Romantic Partners (BSQ-RP; Furman & Wehner, 1994), a 36-item self-report designed to assess secure, preoccupied, and dismissing relational styles in romantic relationships. The BSQ resembles attachment style questionnaires, but assesses intimacy and closeness with respect to caregiving, affiliation and sexuality as well as attachment. For example, a sample item on the preoccupied scale referring to caregiving was: "Sometimes I try to comfort my boy/girlfriends more than the situation calls for." A sample item on the secure scale referring to affiliation was: "Both my boy/girlfriends and I make frequent

efforts to see or talk with each other.” Secure, avoidant, and anxious styles were each assessed using twelve items on five-point Likert scales.

In the current literature on representations, two dimensions are consistently reported: anxious and avoidant (see Mikulincer & Shaver, 2007). Thus, we expected to find evidence of these two dimensions in our participants’ style scores on the BSQ. Results of the principal axes factor analysis with oblique rotation conducted to determine the factor structure of the BSQ in the present sample were reported in Jones and Furman (2011). Two relational style scores were used in the present analyses, both with good internal reliability: (a) an avoidant dimension score computed by subtracting each participant’s score on the secure scale from his or her score on the avoidant scale ($\alpha = .93$) and (b) an anxious dimension score that was equal to the anxious scale score ($\alpha = .86$).

Network of Relationships Inventory: Behavioral Systems Version.

In each wave, participants complete the 24-item Network of Relationships Inventory: Behavioral Systems Version (NRI-BSV; Furman & Buhrmester, 2009) about their close relationships, including their most important romantic partner during that wave. Only participants who had a romantic relationship lasting a month or longer during that wave completed the section of the NRI-BSV pertaining to romantic relationships. The NRI-BSV support scores consisted of fifteen items, which examined five features of social support related to attachment, caregiving, and affiliation: (a) participant seeks safe haven; (b) participant seeks secure base; (c) participant provides safe haven; (d) participant provides secure base; and (e) companionship. The NRI-BSV

Negative Interaction Factor consisted of nine items which assessed the degree of conflict, antagonism, and criticism participants experienced in their most important romantic relationship. Participants rated how much each feature occurred in each relationship using five-point Likert scales (1 = “Little or None”, 2 = “Somewhat”, 3 = “Very Much”, 4 = “Extremely Much”, 5 = “the Most”). Scale scores are derived by averaging the items. The internal consistencies of all NRI-BSV scales for were satisfactory, with average $\alpha = .96$ for the Support Factor and average $\alpha = .90$ for the Negative Interaction Factor across waves (see Furman & Buhrmester, 2009).

Dating History Questionnaire.

The Dating History Questionnaire (DHQ, Furman & Wehner, 1992a) assessed each participant’s current level of romantic relationship involvement on a scale of 1 (not or rarely dating) to 6 (married) at each wave.

Sexual Attitudes and Behavior Survey.

The Sexual Attitudes and Behavior Survey (SABS; Furman & Wehner, 1992b) is a self-report questionnaire which asks about a series of questions about nine different sexual behaviors. The sexual behavior questionnaire is administered by Computer Assisted Self Interviewing techniques to encourage participants to respond honestly (Turner, Ku, & Rogers, 1998). The frequency of sexual behaviors is measured by asking how often participants engaged in each behavior during the past 12 months. Frequency scores are derived separately for genital (vaginal intercourse, anal intercourse, & oral sex), heavy nongenital (dry sex, light petting & heavy petting), and light nongenital

sexual activity (cuddling, kissing, & making out). Internal reliability for the sexual behavior subscales is good, with alphas ranging from .65 to .95, $M = .84$.

Participants are also asked the number of casual partners and total number of partners with whom they had engaged in intercourse with during the past year as two additional indices of risky sexual behavior. Finally, they completed the *Scale of Sexual Risk Taking* (SSRT; Metzler, Noell, & Biglan, 1992), which consists of 12 questions about risky partner characteristics, contraceptive use, and substance use in conjunction with sexual activity. Internal reliability for the SSRT was adequate (mean alpha = .70). Each participant's scores on the SSRT and for the two partner questions were summed to create a composite variable reflecting risky sexual behavior during the past year.

We conducted confirmatory factor analyses using the AMOS5 software package (Arbuckle, 2006) to determine the factor structure of the sexual behavior frequency variables. A three-factor provided the best fit for the data: light nongenital sexual behavior (cuddling, kissing & making out), heavy nongenital sexual behavior (light petting, heavy petting & dry sex) and genital sexual behavior (oral sex and intercourse). Details on this analysis can be found in Jones and Furman (2011). Thus, composite scores for frequency of light nongenital, heavy nongenital, and genital behavior were derived by averaging the three items loading on each factor. Internal consistency for the sexual behavior subscales was good ($M = .83$).

Results

Preliminary Analyses

All variables were examined to insure that they had acceptable levels of skew and kurtosis (Behrens, 1997). In general, outliers were adjusted to fall 1.5 times the interquartile range below the 25th percentile or above the 75th percentile. All the resulting variables had acceptable levels of skew and kurtosis. Ten participants did not report having a romantic relationship in any of the six waves of data, and thus never completed an NRI assessment. These minimal daters were removed from the sample for the present analyses. See Table 1 for descriptive statistics for predictor and outcome variables.

Pattern of associations.

Table 2 (male participants) and Table 3 (female participants) present the bivariate correlations for all major variables and ethnicity. Correlations represent the average bivariate correlation across the six waves of data. In correlational analyses involving the entire sample, gender was associated with all of the primary predictors and with light nongenital frequency. Thus, gender was entered as a between-persons factor at Level 2 in each of the final HLM models, and correlation results are presented separately for each gender. Interaction terms were included to explore gender as a potential moderator of both within-person and between-persons effects of the primary predictors on sexual behavior.

Due to the low number of ethnic minority participants in this sample, non-White participants were grouped together for the purposes of the present analyses. Ethnicity was not associated with any of the primary variables at the bivariate level, but was included in the primary analyses to control for potential multivariate effects. On average within each wave, age was not associated with any of the primary variables for either male or female participants. Romantic relationship status was also associated with sexual behavior frequency at all levels for both genders, but not with risky sexual behavior. Participants who reported more serious current romantic relationships reported more frequent light nongenital, heavy nongenital, and genital sexual behavior. Therefore, romantic relationship status was included as a within-person covariate at Level 1 a between-person covariate at Level 2 in the final models to control for its potential effects on the outcomes in testing the primary hypotheses.

Primary Analyses

To test the primary aims, four hierarchical linear models were constructed to observe associations among sexual behavior, styles and qualities over time, controlling for gender, ethnicity, and romantic relationship status. Analyses were performed using HLM 6.06 software (Raudenbush, Bryk, & Congdon, 2008). HLM has several advantages for dealing with longitudinal data. HLM can take into account the differences in the lengths between data waves by using a specific age variable. HLM is also good at handling time-varying covariates, which in this study include styles, qualities, and relationship status. Because four of the time-varying covariates (avoidant styles, anxious

styles, support and relationship status) were correlated with the time variable (age), the data are considered unbalanced with respect to time (see Curran & Bauer, 2011). Thus, the procedure recommended by Curran and Bauer (2011) was used to disaggregate the within-person and between-person effects of the independent variables. First, each time-varying covariate was regressed on time within each participant, with time grand-mean centered. The time-specific residuals from these equations were entered as predictors in Level 1 of the HLM models to obtain the within-person effects. The sample estimates of the regression intercepts from the equations where each time-varying covariate was regressed on time were entered in Level 2 of the HLM models as predictors of the between-persons effects.

The models included time nested within individuals and scores on one of the sexual behavior composites as the outcome variable in each model. The four outcome variables (light nongenital, heavy nongenital, and genital frequency and risky sexual behavior) were tested in separate models. Each model included a latent developmental trajectory for sexual behavior by including the age variable in the model at Level 1. Age was grand-mean centered at Level 1 and gender was grand-mean centered at Level 2. All other variables at both levels were uncentered. Level 1 of the models represented the within-person effects, consisting of age and the time-specific residual effects of relationship status, styles (avoidant and anxious) and qualities (support and negative interactions). Level 2 accounted for the fact that the data include measures nested within individuals, and represented the between-persons effects of relationship status, styles, and qualities, i.e., the intercepts from the procedure recommended by Curran and Bauer

(2011). The random effects terms were included at both levels for the intercept and age slope terms to allow for random variation due to variables not included in the model. Finally, interaction terms were calculated to test for potential moderating effects of gender. Within-person interactions between gender and the four primary predictors were estimated by cross-level interactions (for example, β_{41} , gender by within-person effect of support). Between-persons interactions between gender and the main predictors were calculated by computing the product of gender and each of the centered intercept terms at Level 2. Each model followed the following form for the Level 1 equation and Level 2 equations. WP denotes within-person effects, and BP denotes between-person effects. Residual terms are absent for variables treated as fixed. Subscript i indicates occasions within individual j, and j indicates individuals.

$$\text{Level 1:} \quad \text{Sexual Behavior}_{ij} = \beta_{0j} + \beta_{1j}(\text{Age}) + \beta_{2j}(\text{WP Relationship Status}) + \beta_{3j}(\text{WP Support}) + \beta_{4j}(\text{WP Negative Interactions}) + \beta_{5j}(\text{WP Avoidant Styles}) + \beta_{6j}(\text{WP Anxious Styles}) + r_{ij}$$

$$\text{Level 2:} \quad \beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Gender}) + \gamma_{02}(\text{Ethnicity}) + \gamma_{03}(\text{BP Relationship Status}) + \gamma_{04}(\text{BP Support}) + \gamma_{05}(\text{BP Negative Interactions}) + \gamma_{06}(\text{BP Avoidant Styles}) + \gamma_{07}(\text{BP Anxious Styles}) + \gamma_{08}(\text{Gender} \times \text{BP Support}) + \gamma_{09}(\text{Gender} \times \text{BP Negative Interactions}) + \gamma_{010}(\text{Gender} \times \text{BP Avoidant Styles}) + \gamma_{011}(\text{Gender} \times \text{BP Anxious Styles}) + u_{0j}$$

$$\beta_1 = \gamma_{10} + u_{1j}$$

$$\beta_2 = \gamma_{20}$$

$$\beta_3 = \gamma_{30} + \gamma_{31}(\text{Gender})$$

$$\beta_4 = \gamma_{40} + \gamma_{41}(\text{Gender})$$

$$\beta_5 = \gamma_{50} + \gamma_{51}(\text{Gender})$$

$$\beta_6 = \gamma_{60} + \gamma_{61}(\text{Gender})$$

Control Variables.

Results from these four models, including all participants, are presented in Table 4 (between-person effects) and Table 5 (within-person effects). Although separate models were run for each outcome variable, the results are organized by predictor to facilitate interpretation. Gender was not significantly associated with any of the outcome variables, although effects for heavy nongenital and genital sexual behavior trended towards significance ($p < .10$). In both cases, females tended to report less frequent sexual behavior. Ethnicity was associated only with heavy nongenital sexual behavior, in that non-White participants reported less frequent heavy nongenital sexual activity than did White participants. With regard to age, all of the outcome variables showed significant linear increases over time, indicating that as young people get older, they engage in more frequent light nongenital, heavy nongenital, genital, and risky sexual behavior. Romantic relationship status was associated with more frequent light nongenital, heavy nongenital, and genital sexual behavior at both the between-person and within-person levels. Relationship status was associated with more risky sexual behavior at the between-person level, but not at the within-person level.

Main Effects.

In terms of avoidant romantic relational styles, significant between-persons effect for light non-genital, heavy non-genital, and risky sexual behavior was found.

Specifically, hypothesis H1a was partially supported, in that participants who reported more avoidant styles on average across time also reported less frequent light and heavy nongenital sexual behavior. However, more avoidant styles were also associated with more risky sexual behavior, consistent with hypothesis H1b. Similar significant within-person effects of avoidant styles were found for light and heavy nongenital sexual behavior. That is, a participant reporting more avoidant styles than usual was related to less frequent light and heavy nongenital sexual behavior at that time. In contrast to the between-persons effects, risky sexual behavior was not associated with avoidant styles at the within-person level. Contrary to predictions (H1c-d), no significant effects were found either at the between-persons or within-person levels for anxious styles.

Contrary to hypotheses, support in romantic relationships was not related to sexual behavior at the between-persons level. However, a different pattern of associations was found at Level 1, providing support for hypothesis H2a, as significant within-person effects of support were found in the models for heavy nongenital and genital frequency. Participants who reported more support in their romantic relationships than usual reported more frequent heavy nongenital and genital sexual behavior at that time. In addition, the within-person effect for support and light nongenital frequency trended toward significance ($p = .07$), with more frequent light nongenital sexual behavior associated with higher levels of support.

Regarding negative interactions in romantic relationships, the between-persons effects of negative interactions on light nongenital, heavy nongenital and genital frequency and risky sexual behavior were significant. In other words, consistent with

hypotheses H2c and H2d, young people who reported more negative interactions with their partners, on average, also reported more light nongenital, heavy nongenital, genital and risky sexual behavior. In contrast, no significant within-person associations were found between negative interactions and sexual behavior.

Gender Effects.

Previous studies involving adolescent romantic relationship characteristics suggest that gender differences are to be expected, given the divergent nature of the expectations around romantic relationship qualities that young men and women bring to these new types of experiences (e.g., Giordano, Longmore, & Manning, 2006). Thus, gender was considered as a potential moderator of the main effects of styles and qualities on sexual behavior in each of the four hierarchical linear models. In addition, gender interaction terms were computed at both the within-person and between-persons levels for each of the main effects.

Only one set of results- for romantic relationship support- showed significant main effects of gender. Significant gender interactions were found only for between-persons effects of support on heavy nongenital frequency, genital frequency, and risky sexual behavior. In other words, participant gender moderated the relations between support and each of the sexual behavior outcomes except light nongenital sexual behavior. The hierarchical linear models for each of these outcome variables were thus analyzed separately for males and females to examine the specific nature of these gender moderation effects. Specifically, female participants who experienced more support over time than their peers reported engaging in significantly less frequent genital and risky

sexual behavior, and the association between support and heavy nongenital frequency was in the same direction but failed to reach significance. In contrast, romantic support and sexual behavior were not significantly associated in the males-only model.

Discussion

The present study extends prior work addressing personal and relational factors associated with sexual behavior. First, it is among the first to simultaneously examine romantic relational styles and romantic relationship qualities. Second, these results extend prior work by examining these associations longitudinally across the transition from adolescence into emerging adulthood. Third, this study uses a multifaceted conceptualization of sexual behavior, taking into account a spectrum of genital and nongenital activity to gain a more complete picture of young people's sexual behavior. Finally, the present study is among the first to use hierarchical linear modeling to tease apart within-person and between-person effects of individual and relationship factors on sexual behavior. Previous studies have tended to focus on between-person effects, and a strength of this study is the inclusion of within-person effects (Curran & Bauer, 2011). Associations among styles, qualities and sexual behavior were found at both the between-person and within-person levels.

Avoidant Styles and Sexual Behavior

Associations between sexual behavior and avoidant styles were as predicted (H1a-b) and consistent with prior research (e.g., Jones & Furman, 2011; Tracy et al., 2003). More avoidant styles were associated with less frequent light and heavy nongenital sexual behaviors, but also with more risky sexual behaviors.

Both within-person and between-person effects were significant for light nongenital and heavy nongenital sexual behavior. However, only between-person effects were significant for risky sexual behavior. The present results partially replicated findings from a previous study with a single wave from the same dataset (Jones & Furman, 2011). In the previous study, which included only data from Wave 3 (mean age = 17), more avoidant styles were significantly related to lower genital, heavy nongenital, and light nongenital frequencies, but were not related to risky sexual behavior.

The associations among avoidant styles, nongenital frequency and risky sexual behavior appear consistent with prior work regarding romantic avoidance. Prior research suggests that young people whose romantic relational styles fall closer to the secure end of the avoidant-secure continuum report feeling more stronger and more positive emotions associated with sexual behavior and feel motivated to show love for partners through physical intimacy (Tracy et al., 2003). In contrast, adolescents and young adults with more avoidant romantic representations may be less likely to engage in sexual activities, particularly light and heavy nongenital behaviors (Jones & Furman, 2011; Tracy et al., 2003). These young people may avoid sexual activity in order to avoid the affection, intimacy, and closeness with partners that often accompany sexual behavior (e.g., Birnbaum, Mikulincer, Orpaz, Reis, & Gillath, 2006; Fraley, Davis, & Shaver, 1998).

Prior work with adults has demonstrated that people with more avoidant styles may focus on the physical pleasure and experimental aspects of sexual activity (e.g., Feeney et al., 1993; Paul et al., 2000; Simpson & Gangestad, 1991), providing one

possible explanation for the present results showing an association between avoidant styles and risky sexual behavior. It may be that individuals with more avoidant romantic styles are likely to engage in relatively little sexual activity during adolescence and emerging adulthood, when they are just beginning to have romantic and sexual experiences. In particular, they may avoid nongenital behaviors such as kissing and cuddling which connote emotional as well as physical intimacy. During the relatively fewer sexual experiences they do have, more avoidant young people may focus on the fun and experimental aspects of sexual activity and make more risky choices. For example, they may be more likely to forego contraception, drink or use drugs in conjunction with sex.

Associations among avoidant styles and sexual behavior frequency at the within-person level were similar to the between-person effects. When an individual's relational style is more avoidant than usual, he or she may feel more reluctant to engage in nongenital sexual behaviors which demonstrate and foster emotional intimacy. He or she may focus more on fun and experimentation in sexual activity and take more risks during periods of relatively higher avoidance. When a young person's styles tend to be more secure, the frequency of nongenital and genital sexual behaviors may increase either to encourage or express emotional closeness with partners.

It is notable that between-person associations among avoidant styles and risky sexual behavior were significant and within-person associations were not. At the between-person level, individuals with more avoidant styles may have more risky sexual behavior because of their tendency toward greater sociosexuality (Simpson & Gangestad,

1991), whereas within-person variations in risky sexual behavior may depend more on time-variant contextual factors, such as partner characteristics, availability of contraception, or substance use. These situation-specific factors may have little or no association with avoidant styles and may account for a large proportion of the variance in an individual's risky sexual behavior over time. Differences in risky sexual behavior may be more apparent at the between-person level. Other potential predictors that are more stable within an individual but vary more between individuals include moral values about sexual behavior, knowledge of and perceived vulnerability to undesired sexual outcomes (e.g., STIs, HIV, or pregnancy), and peer and partner sexual norms.

Anxious Styles and Sexual Behavior

Contrary to prediction (H1c-d), no significant effects were found either at the between- or within-person levels for anxious styles. There are several possible reasons for this finding. In contrast to the present results, associations between anxious styles and more frequent and more risky sexual behavior were found in a previous study using cross-sectional data from the present sample in the 12th grade (Jones & Furman, 2011). The previously found effects may be limited to that developmental period and not extend to other time points. The senior year of high school is a unique time in an adolescent's life. Young people may be contemplating transitions such as moving away, beginning college, or starting work. A desire to gain sexual experience before leaving high school may loom large for some adolescents. For adolescents with anxious representations, the prospect of these transitions may be particularly stressful and activating for the attachment system. These teens may use sexual behavior to hold on to partners in

response to the specific pressures of this liminal period. In addition, low rates of anxious representations are common among community samples of adolescents (e.g., Furman, Simon, Shaffer, & Bouchee, 2002; Seiffge-Krenke, 2006). Before their mid-twenties, young people may not have had the time or experience to develop anxious styles to a level that would impact their sexual behavior. However, this argument brings in to question prior findings linking anxious representations and sexual behavior. Perhaps differences in measurement or sample characteristics (e.g., focus on older age groups) may limit the potential for generalizing prior results to the present findings.

Another possible explanation is that young people with more anxious styles may alternatively engage in and withhold physical intimacy from partners in response to heightened feelings of rejection sensitivity, or the tendency to anxiously expect, readily perceive, and intensely react to rejection (Downey & Feldman, 1996). Rejection sensitivity has been found to be associated with anxious representations of romantic relationships (e.g., Downey & Feldman, 1996) and is related to experiencing repeated rejections from significant others (e.g., Downey, Bonica, & Rincon, 1999). Young people who report more anxious styles (either compared with peers or compared with their usual level of anxious styles) may have more experiences with partners who withhold sexual intimacy. They may exhibit behavioral overreactions to perceived partner rejection (Downey, Feldman, & Ayduk, 2000) such as engaging in less frequent sexual behavior in response to rejection, or engaging in more frequent and more risky sexual behavior in an attempt to bring rejecting partners closer.

Yearly measures of sexual behavior frequency may not adequately capture this mixed pattern of sexual involvement and abstention, resulting in nonsignificant findings.

Support and Sexual Behavior

In the present study, more support and more frequent sexual behavior were significantly associated at the within-person level. As young people decide whether to become more physically intimate with their partners, the amount of support they experience in relationships may be increasingly salient to their sexual behavior. When they experience more support than usual, they may feel safer, more secure and more trusting in their partners and thus more comfortable engaging in more frequent and more physically intimate behaviors. In addition, seeking and providing a safe haven and secure base for one's partners may be particularly context-dependent, according to unique partner personalities and needs.

Conversely, engaging in higher levels and frequencies of sexual behavior may cause adolescents to feel closer to partners. For example, oxytocin, a neuropeptide secreted during sexual activity in humans of both sexes, is associated with a range of social behaviors important to romantic relationships, such as eye gaze, pair bonding, and emotion perception (Bartz & Hollander, 2006). Oxytocin enhances participants' recognition of positive relationship- and sex-related stimuli (Unkelbach, Guastella, & Forgas, 2008).

Finally, adolescents who are experiencing the new and intense emotions associated with the onset of romantic relationships and more frequent sexual activity may idealize their partners and report higher levels of support.

They may consequently overestimate the level of support in these relationships compared with other relationships they have experienced (Murray, Holmes, & Griffin, 1996).

Negative Interactions and Sexual Behavior

As predicted (H2c-d), participants who reported more negative interactions in comparison with their peers reported more frequent light nongenital, heavy nongenital and genital sexual behavior, as well as more risky sexual behavior. These findings are consistent with prior research regarding conflict and sexual behavior (e.g., Fortenberry et al., 2005). It is possible that negative interactions lead to more frequent sexual behavior, or that sexual behavior increases the negative interactions in young people's romantic relationships. These possibilities are discussed further below.

The path from negative interactions to frequent sexual behavior may stem from emotionally intense relationships, as romantic relationships in adolescence present new, passionate, and powerful emotions that may lead to increased negative interactions (Davis & Todd, 1982). For example, Fortenberry et al. (2005) reported that adolescent girls have intercourse more often on days when they experience either more conflict or more support, both of which are relationship qualities with strong yet contrasting emotional valences. Heightened emotions in early romantic relationships may create power differentials that lower one or both partners' self-efficacy to prevent HIV, STIs and pregnancy. Young people involved in more conflictual relationships may feel less efficacious in their dealings with partners. They may lack the communication skill they need to negotiate contraceptive use or sexual boundaries.

For example, young women who are victims of dating violence are less likely and more afraid to ask partners to use condoms (Wingood & DiClemente, 1997).

Another possible path linking negative interactions with more frequent sexual behavior is that participants who experience high levels of negative interactions may be motivated to increase pleasurable interactions with partners by increasing physically intimate behaviors. Sexual activity can be a means to resolve conflict (Shulman, 2003), particularly for young people, who have had relatively little experience with practicing verbal communication skills with partners. They may instead rely on behaviors, including sexual behaviors, to share feelings. This may be one reason why negative interactions were associated with light nongenital behaviors, including kissing and cuddling, which are particularly likely to be behaviors young people use to communicate closeness and affection with partners.

Conversely, frequent sexual activity may actually engender more conflict, antagonism, and criticism in adolescent and emerging adult relationships. This could be because young people may have difficulty managing the strong emotions that come with sexual intimacy, and may struggle to negotiate things like sexual boundaries and contraceptive use. Negative interactions could be related to sexual issues within the relationship, including sexual coercion (Impett & Peplan, 2003). Similarly, frequent negative interactions and conflict with partners could suggest the presence of dating abuse behaviors. Dating abuse is associated with sexual behavior in adolescence (e.g., Eaton, Davis, Barrios, Brenner, & Noonan, 2007). Verbal or physical violence is more

likely to occur in adolescent and emerging adult relationships that involve sexual intercourse, and sex is more likely to occur prior to violence (Kaestle & Halpern, 2005).

No significant association was found at the within-person level for negative interactions and sexual behavior. For adolescents and emerging adults who report high levels of negative interactions in their romantic relationships, between-person differences that are more stable within individuals may be what matters most. For example, exhibiting a hostile attributional style, experiencing externalizing problems, or growing up in a household with high parental conflict may predispose individuals to engage in negative interactions in their romantic relationships across time and partners. A closer examination of partner characteristics and dyadic processes, such as communication and relationship dynamics, may shed more light on within-person differences in sexual behavior.

Styles and Qualities

The results of this study speak to how representations contribute to sexual behavior even when qualities are held constant, and vice versa. Although previous research has shown that styles and qualities are related (Mikulincer & Shaver, 2007), both factors appear to contribute uniquely to sexual behavior. Styles do not account for all of the variance in sexual behavior, and neither do qualities trump styles as predictors of sexual behavior. At the within-person level, more avoidant styles and less support independently contributed to lower sexual behavior frequency. While young people who have more avoidant styles may also report less supportive relationships, there is something about avoidant styles and something about relationship support that contribute

to sexual behavior independent of the association between avoidant styles and support. These results underscore the importance of examining both representations and qualities to increase the amount of variance we can account for in models of sexual behavior.

Similarly, styles and qualities were independently associated with sexual behavior at the between-person level. Both avoidant styles and negative interactions were associated with sexual behavior. Interestingly, less avoidant styles and more frequent negative interactions were associated with more frequent sexual behavior. Again, this shows that both styles and qualities make independent contributions to sexual behavior above and beyond their shared variance. Although people with more avoidant styles may report more negative interactions in their relationships (e.g., Feeney, 1999), more avoidant styles were associated with less frequent sexual behavior, while more negative interactions were associated with more frequent sexual behavior.

As discussed previously, anxious styles were not associated with sexual behavior at either the within-person or between-person level. In the context of the present models of sexual behavior, this could be because anxious styles are simply unrelated to sexual behavior, or because overlapping variances exist among anxious styles and other predictors. Because negative interactions and anxious styles are related (Simpson et al., 2006), their shared variance may have been accounted for by the significant between-person associations between negative interactions and sexual behavior. Anxious styles and avoidant styles may also overlap, in that sexual behavior could be linked to some concept of relational insecurity which is accounted for by the effects of avoidant styles in the models.

Gender Differences

No significant main effects of gender were found in the primary analyses, although two trend-level associations suggest that young women tend to engage in less frequent heavy nongenital and genital sexual behavior. Gender was a moderator only for associations between support and sexual behavior in the present study. Female participants who experienced more romantic support over time in relation to their peers reported engaging in significantly less frequent genital and risky sexual behavior. For male participants, between-person differences in support and sexual behavior were not related. Different gender norms and roles continue to exist for men and women with regard to sexual activity, particularly genital and risky sexual behavior. For example, perceiving an unfavorable power imbalance in a romantic relationship was associated with increased likelihood of having sexual intercourse for adolescent girls, but not boys (Giordano et al., 2010). Young women who feel safe, secure and supported in their romantic relationships may not feel pressure or motivation to increase emotional intimacy or maintain a connection to partners by engaging in genital and risky sexual activity. Less supportive relationships could also increase the likelihood that young women will feel less motivated and less efficacious in saying no to sexual intercourse and risky sexual behavior. Those young women who report more supportive interactions with partners may also feel more self-efficacy with regard to decision-making about oral, vaginal, anal, and risky sex.

They may thus feel more comfortable saying “no” and setting limits, whereas young women who have less supportive relationships may feel less efficacious in their ability to say “no”.

Gender differences in the links between support and genital and risky sexual behavior may reflect gender differences in psychological and emotional factors related to sexual behavior and romantic relationships. Townsend and Wasserman (2011) found that for women, more casual partners were associated with more thoughts involving worry and vulnerability following casual sexual encounters. Perhaps support in romantic relationships helps to protect young women from experiencing these feelings related to sexual activities, although these authors only addressed sexual behavior with casual partners. Their findings are compatible with studies that suggest young women are more vulnerable to undesired physical (e.g., unintended pregnancy, STIs) and psychological (e.g., depression) consequences of sexual behavior than are young men (e.g., Longmore, Manning, Giordano, & Rudolph, 2004; Madkour et al., 2010; Simpson, 1987). Young women who do engage in more frequent oral, anal, vaginal or risky sex may thus report experiencing less support in their romantic relationships because they have experienced some of these consequences of sexual involvement. For example, young women who report more frequent genital and risky sexual behavior may experience more symptoms of depression, which may also result in their having or reporting less supportive relationships. Alternatively, young women in less supportive relationships may use sexual behavior as a way to manage depressive symptoms, as sex may be a strategy young people use to try to alleviate their depression (Grello et al., 2003).

Romantic Relationship Status

Relationship status is clearly associated with different levels and dimensions of sexual behavior. As a growing body of literature suggests, the levels and dimensions of sexual behavior young people engage in differ depending on both the type (Furman & Shaffer, 2011; Grello et al., 2006) and seriousness (Katz et al., 2001) of their relationship with partners. How much experience an adolescent has had in the past with romantic relationships is also important (Cooper et al., 1998; Jones & Furman, 2011).

Relationship status was included in the present study as a control variable, and was associated with more frequent light nongenital, heavy nongenital, and genital sexual behavior at both the within-person and between-person levels in the present study. Whereas previous work has found that simply being in a relationship vs. not being in a relationship is associated with sexual behavior (Lam & Lefkowitz, 2012), the present study shows that the level of commitment or seriousness of one's current relationship is also important.

Relationship status was also associated with more risky sexual behavior at the between-person level, but not the within-person level. It may be that young people endorse using condoms less often when they are in more committed relationships versus more casual relationships. Condom use has been shown to occur less frequently with "main" partners (Lescano et al., 2006), perhaps because young people trust their partners more when they are in more committed relationships and thus perceive less health risk. However, young people's rates of condom use with casual partners are also quite low (Lescano et al., 2006). Perhaps individual young people engage in more risky sexual

behavior with both less serious and more serious partners over time, resulting in a nonsignificant within-person linear effect of relationship status. Consequently, the effect of relationship status on risky sexual behavior may be more quadratic in shape at the within-person level (see Lam & Lefkowitz, 2012).

Although prior research has shown relationship status to be a potential mechanism for effects of style on sexual behavior (Jones & Furman, 2011), the present study did not assess mediational models of sexual behavior. This will be an important direction for future work. However, because relationship status was included in the models, the present results suggest that styles and qualities are independently associated with sexual frequency and risk, above and beyond the effects of current relationship status.

Implications for Public Health

This study has implications for important public health issues, namely the prevention of HIV, STIs, and unintended pregnancy among adolescents and emerging adults. Romantic relationships are the primary context for sexual behavior (e.g., Graber et al., 1999), and health consequences resulting from sexual behavior with romantic partners are a real threat to many young people. People under the age of 25 account for nearly 50% of the STI diagnoses in the United States each year (CDC, 2005). Twenty-five percent of girls ages 15-19 are infected with the human papilloma virus (HPV; CDC, 2006). In addition, adolescent between the ages of 15 and 19 accounted for 12% of pregnancies in 2002. Condom use is critical for preventing pregnancy and the transmission of STIs and HIV during sexual intercourse.

However, only 61.5% of adolescents in the 2007 CDC Youth Risk Behavior Survey used a condom during last sexual intercourse.

Results from the present study suggest avenues for examining individual differences in sexual behavior and identifying targets for public health intervention strategies. Decision-making on issues related to sexual risk, such as condom use, can be heavily influenced by socioecological considerations (DiClemente, Salazar, Crosby, & Rosenthal, 2005). This idea may extend to personal and relational factors associated with romantic relationships such as the styles and qualities examined in the present study. Specifically, the present study suggests that individuals with more avoidant styles and who report more negative interactions in their relationships may be in particular need of interventions designed to reduce risky sexual behavior. Interventions for youth need to promote the development of healthy romantic relationships as a key factor in young people's sexual decision-making. Interventions to help young people practice safer sexual behavior will need to address differences among participants who are currently involved in romantic relationships and those who are not. For example, the skills young people need to negotiate condom use or communicate their sexual boundaries with partners will likely vary depending on whether they are talking to a friend, someone with whom they have been on a few dates, a serious boyfriend or girlfriend or someone they plan to marry. Just as developmental research on sexual behavior and romantic relationships needs to become more integrated (Furman, 2002), sex education and relationship education are both indispensable and should not be mutually exclusive.

Furthermore, the present results highlight the need for public health interventions to address multiple levels and dimensions of sexual activity such as light nongenital, heavy nongenital, and genital frequency in addition to risky sexual behavior. Different levels of sexual behavior are related to styles and qualities in different and sometimes opposite ways. In particular, the present results suggest that frequent sexual behavior is not associated with the same personal and relational factors as risky sexual behavior. These findings echo those of Welsh and colleagues (2005). They found that kissing was associated with positive relationship qualities, whereas intercourse was associated with both negative and positive relationship qualities depending on the age of the participant. The present results also suggest that sexual frequency and sexual risk-taking are distinct constructs. They may be behavioral markers of different processes in young people's romantic relationships and representations of these relationships. Interventions targeted towards the prevention of STIs, HIV and unintended pregnancy in adolescence and emerging adulthood should be developed with the awareness that sexual behaviors are not always associated with unfavorable aspects of young people's relationships. In fact, affectionate behaviors like kissing may serve to enhance intimacy, affection and commitment (Welsh et al., 2005). Teaching young people only about the dangers of genital sexual behavior and how to refuse intercourse may not accurately reflect the reality of youths' romantic and sexual lives. Abstinence-based education may take the risk of ignoring both the wider spectrum of sexual activities and the reality of the romantic relationship context.

Limitations and Future Directions

This study has several limitations. It also has significant implications for future research. Although the present study used longitudinal data across six waves, the focus of the analyses was on teasing apart between-person and within-person effects among styles, qualities and sexual behavior over time. No conclusions could be drawn about the direction of effects between styles and sexual behavior or between qualities and sexual behavior. In the future, examining cross-lagged associations among the primary variables may facilitate making causal inferences about the direction of association of the present results.

In the present study, data from adolescents and emerging adults were analyzed together. These ages represent distinct developmental periods within which the primary associations tested in this study may look quite different. For example, the present results differed in several specific ways from previous research using data from participants at age 17 (Jones & Furman, 2011). Adolescents with avoidant styles (Tracy et al., 2003) exhibit different patterns of sexual behavior than do adults with avoidant styles (e.g., Simpson & Gangestad, 1991). Links between relationship qualities and sexual behavior also change as adolescents approach emerging adulthood (Welsh et al., 2005). Moreover, growth trajectories of sexual behavior may not be linear. For example, Fergus and colleagues (2007) found both linear and quadratic trends in their study of adolescent and young adult sexual behavior, and showed that risky sexual behavior accelerated during adolescence, then peaked and decelerated during young adulthood. Similarly, Lam and Lefkowitz (2012) found a quadratic pattern of change for condom use inconsistency in

emerging adulthood. Future studies would benefit from testing the fit of the present model separately for adolescents and emerging adults, and including nonlinear models of sexual behavior growth over time.

All of the limitations of self-report data apply to the present study. In particular, support and negative interactions are relationship-level qualities, but they are measured only in terms of participant report. Future research should also include more information about romantic partner characteristics and reports from these partners to provide a more comprehensive picture of romantic qualities and sexual behavior within the relationship dyad. Individual and partner characteristics likely interact in complex ways, and both sides influence and are influenced by sexual behavior that occurs within the relationship context.

Just as between-person and within-person associations were distinct in the present study, between-couple and within-couple differences may also be different from one another. Examining couple-level differences in sexual behavior and its predictors will further enhance our understanding of sexual development (c.f. Welsh et al., 2005). Analyses of between-person and within-person effects can be further elaborated to include contextual and additive effects (Raudenbush & Bryk, 2002). Inter- and intraindividual processes may interact with or increase one another's effects (Hoffman & Stawski, 2009). For example, it would be very interesting to assess sexual behavior in the case of a participant experiencing more support than usual at a given time point, but in a relationship characterized by less support in comparison with peers' relationships.

Future studies investigating socioecological correlates of adolescent and emerging adult sexual behavior should include styles and qualities in addition to other factors that likely influence sexual behavior. As suggested in models of sexual risk behavior such as the social-personal framework (Donenberg & Pao, 2003), it will be important to expand the model from the present study to include multiple personal and relational factors such as relationship dynamics (Giordano et al., 2010), sexual values (Weatherill, Neal, & Fromme, 2010), psychopathology (Brown et al. 2010), peer norms (Dolcini, Harper, Watson, Catania, & Ellen, 2005), motives for sexual behavior (Davis, Shaver, & Vernon, 2004), and family relationships (James, Ellis, Schlomer, & Garber, 2012).

Models of sexual behavior must involve not only personal and relational factors, but various dimensions within each category. Both favorable (support) and unfavorable (negative interactions) qualities and both anxious and avoidant representations were assessed in the present study. However, future research should investigate how these factors and their dimensions may operate in concert with one another. The present study examined both inter- and intra-individual associations, but did not assess how social and personal factors (styles and qualities) at each level interact with one another. Several studies have shown that highly anxious individuals who experience more conflict or less support in romantic relationships experience detrimental effects on their relationships (for a review, see Simpson, Campbell, & Weisberg, 2007). Combinations of insecure representations and unsatisfactory relationship experiences may increase the risk of unhealthy behaviors in the relationship context, including sexual behavior. The present results suggest that young people who report greater levels of *both* avoidant

representations and negative interactions may be particularly vulnerable to engaging in risky sexual behavior. Furthermore, additional dimensions of representations and relationship qualities were not assessed in the present study, and could present important avenues for further investigation. For example, the present study did not examine disorganized representations, which are related to sexual coercion (Davis, 2007). Relationship satisfaction is a quality that may also have significant associations with sexual behavior (Welsh et al., 2005).

Finally, although the present sample has the strength of involving adolescents recruited from the community and is representative of the Western U.S. city where the study was conducted, this sample was comprised of predominantly white, non-Hispanic, heterosexual young people. In addition, ethnicity was coded as either White or non-White in the present study, which clearly limits the utility of the findings. The study findings may not generalize to other populations. It should also be noted that not all young people progress through these “levels” of sexual behavior in a linear fashion from light nongenital to genital and/or risky sexual behavior: for example, White and Black adolescents report different sequences of these behaviors (Furstenberg, Morgan, Moore, & Peterson, 1987; Smith & Udry, 1985). Further work is needed to examine associations among sexual behavior, styles and qualities among diverse subgroups of adolescents and emerging adults, such as ethnic minority and international youth (Bouchey & Furman, 2003) and sexual minority youth (Diamond, Savin-Williams, & Dube, 1999).

In summary, this study is among the first to examine associations among young people’s romantic qualities, representations, and sexual behavior. This study use

longitudinal data to tease apart between-person and within-person effects. Moreover, this study extends prior work by including multiple levels and dimensions of sexual behavior. It is hoped that results from the present study will stimulate continued research in the area of romantic and sexual relationship trajectories in adolescence and emerging adulthood.

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Appendix A: Tables

Table 1

Means (and SDs) of Study Variables

Study	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6
variables	(N=199)	(N=199)	(N=198)	(N=195)	(N=187)	(N=184)
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Age	15.88 (.47)	16.89 (.47)	17.93 (.50)	19.03 (.56)	20.51 (.56)	22.08 (.64)
Rel Status	4.03 (2.28)	4.69 (2.47)	4.95 (2.48)	5.35 (2.90)	6.23 (3.78)	7.04 (4.33)
Avoidant	-3.64 (.55)	-3.80 (.64)	-3.90 (.63)	-3.96 (.61)	-3.96 (.61)	-4.12 (.61)
Anxious	2.34 (.54)	2.21 (.59)	2.19 (.61)	2.20 (.62)	2.20 (.64)	2.07 (.65)
Support	3.04 (1.04)	3.47 (1.06)	3.48 (1.01)	3.69 (1.01)	3.56 (1.05)	3.84 (.98)
Neg Inter	1.81 (.70)	1.71 (.74)	1.94 (.94)	1.73 (.76)	1.90 (.86)	1.79 (.75)
LNG Freq	1.58 (.64)	3.20 (1.32)	3.46 (1.25)	3.39 (1.23)	3.61 (1.15)	3.71 (1.24)
HNG Freq	1.23 (.42)	2.48 (1.23)	2.65 (1.21)	2.76 (1.17)	3.00 (1.12)	3.05 (1.15)
Gen Freq	1.09 (.27)	1.70 (.87)	1.94 (.89)	2.11 (.89)	2.31 (.93)	2.48 (.89)
Risky Sex	1.09 (.45)	1.49 (.77)	1.70 (.74)	2.06 (.98)	2.08 (.94)	2.32 (1.11)

Note. Rel Status = romantic relationship status. Avoidant = avoidant styles. Anxious = anxious styles. Neg Inter = negative interactions. Gen Freq = genital frequency. HNG Freq = heavy nongenital frequency. LNG Freq = light nongenital frequency. Risky Sex = Scale of Sexual Risk Taking.

Table 2

Correlations Among Key Variables For Male Participants

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Ethnicity	-	-.04	.12	.06	-.09	.08	.18	.08	.01	.15	.21 [†]
2. Age		-	-.03	.01	.12	.06	.03	.01	.00	-.02	.06
3. Rel Status			-	-.28 [†]	-.17	.41 [*]	.02	.64 ^{**}	.53 ^{**}	.50 [*]	.26
4. Avoidant				-	.32 [†]	-.56 ^{**}	.16	-.28 [†]	-.21	-.09	.06
5. Anxious					-	-.28	.17	-.15	-.11	-.04	.02
6. Support						-	.06	.47 ^{**}	.35 [†]	.29	.07
7. Neg Inter							-	.06	.09	.15	.12
8. LNG Freq								-	.83 ^{**}	.67 ^{**}	.44 ^{**}
9. HNG Freq									-	.72 ^{**}	.51 ^{**}
10. Genital Freq										-	.65 ^{**}
11. Risky Sex											-

Note. ^{**} $p < .01$. ^{*} $p < .05$. [†] $p < .10$. $N = 57 - 95$. Rel Status = romantic relationship status. Avoidant = avoidant styles. Anxious = anxious styles. Neg Inter = negative interactions. Genital Freq = genital frequency. HNG Freq = heavy nongenital frequency. LNG Freq = light nongenital frequency. Risky Sex = Scale of Sexual Risk Taking.

Table 3

Correlations Among Key Variables For Female Participants

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Ethnicity	-	.09	-.06	-.03	.06	.01	.14	-.12	-.12	-.02	-.08
2. Age		-	.08	-.18	.04	.08	-.02	.12	.16	.20	.09
3. Rel Status			-	-.28 [†]	-.09	.38 ^{**}	.03	.53 ^{**}	.39 ^{**}	.40 ^{**}	.12
4. Avoidant				-	.29 [†]	-.55 ^{**}	.16	-.36 [*]	-.27	-.22	.04
5. Anxious					-	-.14	.00	-.11	-.05	-.10	.06
6. Support						-	-.12	.28 [†]	.14	.13	-.15
7. Neg Inter							-	.01	.02	.07	.13
8. LNG Freq								-	.76 ^{**}	.61 ^{**}	.30 [†]
9. HNG Freq									-	.72 ^{**}	.36 [*]
10. Genital Freq										-	.48 [*]
11. Risky Sex											-

Note. ^{**} $p < .01$. ^{*} $p < .05$. [†] $p < .10$. $N = 65 - 94$. Rel Status = romantic relationship status. Avoidant = avoidant styles. Anxious = anxious styles. Neg Inter = negative interactions. Genital Freq = genital frequency. HNG Freq = heavy nongenital frequency. LNG Freq = light nongenital frequency. Risky Sex = Scale of Sexual Risk Taking.

Table 4

Summary of Hierarchical Linear Models: Between-Person Effects

Equation Term	Light Nongenital	Heavy Nongenital	Genital	Risky
Between-Person Fixed Effects				
Intercept (β_{00})	.96 [†] (.50)	.42 (.60)	1.32* (.65)	2.43** (.57)
Gender (β_{01})	-.03 (.08)	-.20 [†] (.10)	-.19 [†] (.11)	-.00 (.10)
Ethnicity (β_{02})	-.13 (.09)	-.25* (.11)	-.03 (.12)	-.04 (.10)
Avoidant Styles (β_{03})	-.23* (.11)	-.27* (.14)	-.08 (.15)	.28* (.13)
Anxious Styles (β_{04})	.06 (.09)	.13 (.11)	-.14 (.12)	-.05 (.10)
Support (β_{05})	.10 (.06)	-.02 (.07)	-.12 (.08)	-.08 (.06)
Negative Interactions (β_{06})	.15* (.07)	.17* (.08)	.27** (.05)	.19* (.08)
Relationship Status (β_{07})	.44** (.06)	.40** (.08)	.55** (.09)	.31** (.07)
Gender x Avoidant (β_{08})	-.42 [†] (.23)	-.37 (.27)	-.47 (.30)	-.34 (.26)
Gender x Anxious (β_{09})	.14 (.18)	.21 (.22)	.08 (.24)	.14 (.21)
Gender x Support (β_{10})	-.16 (.12)	-.28* (.14)	-.32* (.15)	-.35** (.13)
Gender x Neg. Int. (β_{11})	-.15 (.14)	-.16 (.17)	-.13 (.18)	-.15 (.15)

Note. * $p < .05$. ** $p < .01$. [†] $p < .10$. The primary numbers in the table are the unstandardized coefficients for the fixed effects. Standard errors are in parentheses.

Table 5

Summary of Hierarchical Linear Models: Within-Person Effects

Equation Term	Light Nongenital	Heavy Nongenital	Genital	Risky
Within-Person Fixed Effects				
Age (β_{10})	.24** (.02)	.23** (.02)	.32** (.02)	.22** (.02)
Avoidant Styles (β_{20})	-.35** (.12)	-.31* (.12)	-.14 (.11)	-.09 (.08)
Anxious Styles (β_{30})	-.13 (.11)	-.11 (.11)	.08 (.10)	.03 (.07)
Support (β_{40})	.13 [†] (.07)	.19* (.07)	.24** (.07)	.05 (.05)
Negative Interactions (β_{50})	.05 (.07)	.00 (.08)	.11 (.07)	.04 (.05)
Relationship Status (β_{60})	.38** (.06)	.21** (.06)	.33** (.06)	-.01 (.04)
Gender x Avoidant (β_{21})	-.08 (.24)	-.11 (.24)	-.20 (.22)	-.12 (.16)
Gender x Anxious (β_{31})	-.22 (.23)	.29 (.23)	-.12 (.21)	-.14 (.15)
Gender x Support (β_{41})	-.02 (.14)	-.12 (.14)	-.17 (.13)	-.07 (.09)
Gender x Neg. Int. (β_{51})	-.03 (.15)	-.06 (.15)	-.13 (.14)	.04 (.10)

Note. * $p < .05$. ** $p < .01$. [†] $p < .10$. The primary numbers in the table are the unstandardized coefficients for the fixed effects. Standard errors are in parentheses.